

### **REMARKS**

Favorable reconsideration and allowance of the present invention are respectfully requested in view of the following remarks. Claims 1-9 are pending in the present application.

#### **Claim Rejections Under 35 U.S.C. § 103(a)**

Claims 1, 2, 5-7 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hughes et al. (U.S. Publication No. 2004/0154787, hereinafter “Hughes”).

Claims 1-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shibata et al. (JP 2003-97898, hereinafter “Shibata”) in view of Tatsumi (JP 9-72683, hereinafter “Tatsumi”). These rejections are respectfully traversed.

Independent claim 1 recites, *inter alia*, “an inlet part of the water passage in communication with an outermost part of the refrigerant passage having water of a predetermined temperature or less is provided with a heat transfer enhancer and rest of the water passage is devoid of a heat transfer enhancer.” Independent claims 2-4 recite similar subject matter. The applied references fail to teach or suggest the recited features of independent claims 1-4.

The Examiner correctly admits that none of the cited references including Hughes, Shibata and Tatsumi teaches or suggests a water passage having a heat transfer enhancer only at an inlet part as in claims 1-4. The Examiner further asserts that “[i]t is conventional in the art to make heat transfer tubes lacking in heat transfer enhancement and heat transfer tubes having heat transfer enhancement.” The Examiner then concludes that it would have been obvious to one of ordinary skill in the art to modify the cited prior art to provide a heat transfer enhancement in certain desired locations and not in other locations and one of ordinary skill in the art would be motivated to do so to increase heat transfer in desired locations. Applicants disagree.

First, even if, *arguendo*, it is not to have passages with and without heat transfer enhancements, this is not equivalent to disclosing a single passage which includes a portions with enhancement and portions without.

Second, as discussed in details in the background section of the present application, some of the prominent causes of adhesion of a scale component to the inner wall of a water passage are: a case in which the temperature of the passage wall becomes high; a case in which the water speed is low; a case in which the water flow is disturbed. This has restricted use of heat transfer enhancers for enhancing heat transfer from the water side and made it difficult to enhance the performance of hot water supply heat exchangers. In view of such a problem, the present invention provides an inlet part of the water passage in communication with an outermost part of the refrigerant passage having water of a predetermined temperature or less that is provided with a heat transfer enhancer and the rest of the water passage is devoid of a heat transfer enhancer. With this particular arrangement, the present invention seeks to enhance the performance of heat exchangers while preventing adhesion of a scale component to the inner wall of a water passage. Hughes and Tatsumi are not concerned with providing such features. In contrast, both Hughes and Tatsumi teach away from the present invention by forming heat transfer enhancement on substantially the entire inner wall surface of tubes. In other words, since Hughes and Tatsumi are merely directed to enhancement of heat transfer performance of the tubes, one of ordinary skill in the art would not be motivated to modify Hughes or Tatsumi to provide a heat transfer enhancement in certain locations and not in other locations as asserted by the Examiner. Furthermore, the Examiner alleges that it is conventional in the art to make heat transfer tubes lacking in heat transfer enhancement and heat transfer tubes having heat transfer enhancement. However, such allegation is without merit. The fact that there are tubes with and without heat transfer enhancement does not provide any support for an assertion that it would have been obvious to one of ordinary skill in the art at the time of invention to provide a heat transfer enhancement in certain locations and not in other locations. Thus, contrary to the Examiner's assertion, it would not have been obvious to one of ordinary skill in the art at the time of invention to modify Hughes or Tatsumi in an effort to satisfy the claimed features of the present invention. Shibata does not remedy the deficiencies of Hughes and Tatsumi. If this rejection is maintained, Applicants respectfully request that the Examiner clearly identify prior art that allegedly teaches the claimed features.

In view of the above remarks, Applicants respectfully submit that the grounds of rejection set forth on pages 2-4 of the Office Action fails to establish that the prior art teaches an inlet part of the water passage in communication with an outermost part of the refrigerant passage having water of a predetermined temperature or less that is provided with a heat transfer enhancer and the rest of the water passage is devoid of a heat transfer enhancer. Consequently, the rejection fails to establish *prima facie* obviousness of any of the rejected claims. Thus, Applicants respectfully request reconsideration withdrawal of the Examiner's rejection under 35 USC § 103.

For at least the reasons stated above, independent claims 1-4 are patentably distinct from the applied references. The dependent claims are at least allowable by virtue of their dependence on corresponding allowable independent claims 1-4.

#### **CONCLUSION**

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Dennis P. Chen Reg. No. 61,767 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 

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